

IVES MANUFACTURING CORPORATION
194 Holland Avenue
Bridgeport
Fairfield County
Connecticut

HAER No. CT-170

HAER
CONN
1-BRIGPO,
10-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

HISTORIC AMERICAN ENGINEERING RECORD

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CONN
1-BRIGPO,
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IVES MANUFACTURING CORPORATION

HAER No. CT-170

Location:

194 Holland Avenue
Bridgeport, Fairfield County, Connecticut

USGS Bridgeport Quadrangle, 1:24000
UTM Coordinates: 18.649540.4558950

Designer/Consultant:

Unknown

Dates of Construction:

1907, with addition in 1917

Builder:

Unknown

Present Owner:

West End Community Development Corporation
(Tito Molino, phone 203 336-5939)

Present Use:

Vacant.

Significance:

The patent-stone ashlar building was the first factory in the United States built for the sole purpose of making toy trains. Ives was the largest producer of electric trains in this country for almost ten years, manufacturing the first "O" gauge trains in America to run on fabricated sectional track. The company had a reputation for high standards, living up to the slogan "Ives Toys Make Happy Boys."

Project Information:

Current development plans call for the building to be demolished to make way for expansion by a neighboring manufacturer and an enlarged parking lot. HAER documentation of the Ives Toy Factory was requested by the Connecticut Historical Commission in 1996, prior to demolition of the building. The structure was inspected in February 1997. Photographs of the interior were taken when the buildings were vacated (March 1997).

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Summary Description of Factory and Setting

The Ives Manufacturing Corporation is located in the West End of Bridgeport, Connecticut, at 194 Holland Avenue. (USGS 1970: Bridgeport quad.) The block (#1218) is bounded on the southwest by Holland Avenue, on the northwest by Ash Street, on the northeast by Mountain Grove Street, and on the southwest by Fairfield Avenue. The factory extends through the block to 389-393 Mountain Grove Street.

The area is primarily light industrial and residential in character, with some heavy industrial-use buildings to the south and a church and diner to the east. Most of the buildings date to the very late nineteenth and early twentieth centuries. With the exception of the Ives building, most have been dramatically altered, in some cases completely compromising their architectural integrity.

Edward Ives erected his patent stone building at 194 Holland Avenue in 1907. The new building was the first factory in the United States built for the sole purpose of manufacturing toy trains, the first "O" gauge trains in the country to run on fabricated sectional track.

There are several historic districts north and south of the Ives Factory area. The Railroad Avenue Historic District, bounded in part by Fairfield Avenue and State Street (NR 1985), is several blocks south of the Ives Factory. The Stratfield National Register Historic District lies over six blocks northeast of Mountain Grove Street along a more northerly portion of Fairfield Avenue. The local Stratfield Historic District, first proposed to the Connecticut Historical Commission in 1990, is a 260-building north/south linear area along Clinton and Brooklawn Avenues immediately north of Fairfield Avenue. Residential in character, it consists primarily of detached single-family frame dwellings that date from the late nineteenth and early twentieth centuries (SHDC 1990: Overview).

Historical Context: The Development of Bridgeport's West End

There was a small eighteenth century farming settlement in the general vicinity of the Ives location, according to early maps and historical accounts. Onion farms and apple orchards dominated this rural district, which was called Stratfield. None of the early farmhouses, the early militia training ground, milestone markers, or the Old Stratfield Burying Ground were apparently within the immediate area of the current Ives factory site.

According to nineteenth century maps and atlases, as late as 1888 the vast majority of the future Ives factory vicinity was undeveloped and under the ownership of a few men: P.T. Barnum, F. E. Silliman, H. M. Purdy, and George Waller. Apparently, Ash Creek and

surrounding wetlands had not been redirected and drained, so the northwestern section of the area was still a "wetland." In 1888, Mountain Grove Street was the only fully regulated road to support any commercial and/or residential properties. Three structures, probably residences, fronted the north curb of Mountain Grove Street across the street from the future location of the Ives factory. David B. Crockett Co. Varnish Works dominated the southern Mountain Grove mid-block frontage (Hopkins 1888). The Varnish Works, demolished in the twentieth century, was on a parcel between what is today #277-#389 Mountain Grove Street, near the rear part of the Ives building.

Blocks in the area were lotted and slowly sold off between 1888 and 1910. James T. Patterson, the owner of the Cornwall & Patterson Company, developed workers' housing along the southwestern end of Ash Street, and Alexander Hawley developed a residential community along the north side of Mountain Grove Street, across the street from the rear of the Ives lot. E. Silliman was apparently the major owner/developer in the area at the turn of the century. Crockett's continued to be the dominant occupant of the block through at least 1896 (Pidgeon 1896). The Cornwall & Patterson large brick-faced factory occupies virtually the entire block bounded by Bedford Avenue, Silliman Street, Ash Street and Fairfield Avenue. The Grant Manufacturing Company on Silliman Street is another early manufacturing facility that survives from this period.

Bridgeport's population exploded from 49,000 in 1890 to 71,000 just ten years later; by 1910 it was over 100,000. Much of this growth was due to waves of immigration, including large numbers of Swedes, French-Canadians, Slovenians, and Hungarians. The burgeoning industries of the West End became a magnet for newly arrived Hungarians and eventually "Little Hungary" was an established community immediately south of State Street. In 1900 Bridgeport supported three Hungarian newspapers and was the second largest so-called "Hunky Town" in the country (MN, 1994, Vol. V, 3:1). Hungarian churches, businesses, and social halls were concentrated along several streets and avenues south of the railroad corridor, such as Wordin, Pine, Bostwick, Cherry, and Hancock. There were Hungarian restaurants spilling their music onto the streets, and the residents enjoyed plays in their native language. Fraternal organizations, such as the Rakoczi Aid Association (later called the William Penn Fraternal organization), and sports teams were composed of West End Hungarians (Geller, Book Two, 1982:58).

The Hungarian Baptist Church was formed and erected a small chapel on Silliman Street for temporary services. In 1915 the frame sanctuary, dwelling, and outbuilding that are still standing at the intersection of Fairfield Avenue and Silliman Street were built by the Hungarian Baptist group. Although the name was eventually changed to the Silliman Memorial Baptist Church, the congregation maintained strong Hungarian ties, and the ministers through 1964 were all Hungarian natives (BPL Newspaper Clippings File: Baptist Churches).

As the twentieth century progressed, several large manufacturing enterprises grew up in Bridgeport. They produced various items such as phonographs, organs, automotive parts, typewriters, and electrical devices. These large industrial complexes hired thousands of workers. Bridgeport's first public housing was constructed to accommodate the influx of workers for the World War I effort. Numerous other small manufacturing and service sectors developed in response to the city's rapid industrial expansions. One was primary metals manufacture, in which the steel and brass material used in manufacturing were provided in the form of sheet, tube or wire (NR 1985:8).

The Ives factory location lies south and west of the late nineteenth century exclusive residential district that flourished along Clinton and Brooklawn Avenues and their perpendicular side streets. In the 1880s this area was laid out in regular city lots with a grid street pattern (SHDC 1990:Description). Additionally, Clapp Spooner's development, known as "Brooklawn Park," consisted "of winding streets which meandered through a picturesque landscape and connected" knolls and terraces with the avenue (Mohylowski 1986:n.p.). As the population grew and continued to spread into the lands west of Bridgeport's growing center, dwellings of "somewhat lesser scale" were built along the district's periphery, including the north side of Mountain Grove Street (SHDC 1992: April).

According to the detailed 1913 Sanborn Insurance Map, although the industrial complexes had expanded, there was very little change in ownership and type of manufacturing in the 1910 to 1913 years. The Bridgeport Vehicle Company complex was now occupied by the Blue Ribbon Auto and Carriage Co. The "Fred K. Braitling Mfg. Dolls Shoes Etc." had moved into the one-half block immediately west of Grant Manufacturing on Silliman Street, where it remained at least until 1939.

A one-story chapel [First Hungarian Baptist] had been erected on the north side of Silliman Avenue near the Fairfield Avenue intersection. Ash Street between Bedford and Silliman Avenues was fully developed with residences. The one-story chapel construction reflects a neighborhood shift in one of the dominant West End ethnic communities. During the first half of the twentieth century, the Hungarian community expanded northward to State Street with the 1904 founding of the Hungarian Reformed Church and north on Hancock Street with the 1927 construction of West End Congregation/Achavath Achim Synagogue and along Fairfield Avenue with businesses such as Polke Funeral Home, the Samogyi tailor shop and Sefer's butcher shop (Geller, Book Two, 1982:61). Numerous other small manufacturing and service sectors developed in response to the city's rapid industrial expansion.

As a reflection of the city's evolution, during the World War I years, the area around the Ives factory experienced growth and change. As depicted on the 1917 Hopkins Atlas, a church had been constructed on the northwest corner of Silliman and Fairfield [First Hungarian Baptist], replacing the temporary chapel depicted on the slightly earlier atlas. It stands today. The Blue Ribbon company, a manufacturer of automobile bodies, had expanded to control two additional properties (Historic Resource Consultants 1984:27). The Grant complex employed 50 men at the height of the war effort. Additional small business concerns had moved into the area also. There were, however, still many vacant lots. Ash, Dewey, and Mountain Grove were streets dominated by residences, but the northern end of Ash Street was, as it is today, commercial and not residential.

The 1929 Hopkins atlas portrays a continuation of the mixed-use of the area lots with additional metal working shops, including General Sheet Metal Works, Stanley Bronze Co., and the Bridgeport Silverware on just the one block between Silliman and Holland Avenues. The northern end of Ash Street hosted commercial establishments: a dry cleaners and a steel fabricating shop. The Cornwall & Patterson building appeared to have expanded. By 1930 the West End Park at the apex of the Fairfield Avenue and State Street intersection was developed to augment the newly constructed public library West End Branch. South of this park were the larger industrial complexes that paralleled the rail lines.

The major period of development of the neighborhood occurred during World War I. Many small factories filled the lots on Holland and Silliman, providing a variety of goods for the war effort. The resultant willy-nilly development has left an ill-defined, mixed use area that was dominated by small manufacturing facilities.

Cornwall & Patterson had vacated the block between Silliman and Bedford Avenues by 1939, being replaced by the Bridgeport Pressed Steel Corporation & Bright Light Reflector Co., Inc. The Ives company had also left the project area by this time. The Ives complex was occupied by the Bridgeport Fabrics Inc., makers of rubber weather strips. Bridgeport Fabrics also occupied an annex between Holland and Silliman Avenues. Interestingly, a varnish company, one of the first businesses to open in the project blocks, continued to operate out of the same Mountain Grove address through 1949.

The characteristics of the West End of Bridgeport drastically changed with the mid-century construction of the Interstate Highway I-95. The elevated corridor divided the community, displaced congregations, and destroyed churches and social halls (MN 1993, Vol. III:8:6). Much of the Hungarian population subsequently moved to the Black Rock area and the neighboring Fairfield.

The Ives factory building was purchased by Bridgeport Fabrics, Inc. during the 1930s and was used to manufacture weather stripping. The building was then occupied by American Fabrics and was purchased by the MacAdams family in 1961. Most recently, L.P. MacAdams, Incorporated, used it for printing and mailing brochures and other pieces and for paper conversion. They vacated the building in March, 1997.

Ives Manufacturing Corporation History

Edward Ives founded what was to become The Ives Manufacturing Company in 1868 and moved it to 1047 Broad Street in Bridgeport in 1870. Ives was a prominent manufacturer of toys, including toy cannons and miniature horse and wagon rigs. His factory was an early and very significant Bridgeport industry. This original location was not in proximity to the study site.

A disastrous fire struck the Ives & Williams Company factory on December 22, 1900, destroying the building and all the patterns, parts and tools for manufacturing the cast-iron toys. In 1901 The Ives Manufacturing Company, in rented space, began producing the first "O" gauge trains in the United States to run on fabricated sectional track. The trains were powered by clockwork machinery inside the toy, and sales for the year totaled \$2,600.00. During that year and 1902, the die stamping production of trains, cars and track was subcontracted out to Haberlin and Hays Bridgeport Tool & Die (Robinson 1991:12).

The fire provided an opportunity for Edward Ives and his son Harry to rethink their line. The insurance money and profits from sales enabled them to retool and build a new plant (Greenberg 1991:7). Ives purchased a large lot, with room for expansion, on Holland Avenue, and the present building was erected in 1907. It was the first factory in the U.S. built for the sole purpose of making toy trains (Robinson 1991:12).

Edward Ives was a pioneer in the manufacturing of mechanical toys but his son Harry perfected the electric toy train that became synonymous with the company slogan "Ives Toys Make Happy Boys." After the introduction of the first electric train in 1910, Ives became the largest producer in this country and maintained that position until 1919. (See Photo CT-170-24). Ives also produced an ambitious line of accessories beginning in the early 1900s, and in 1913 opened a showroom in New York City. The showroom was shared with Braitling & Co, a neighboring Bridgeport manufacturer of dolls and doll accessories (Hertz 1950:102).

In 1917 Ives expanded to the north of his original 1907 structure, building a two-story addition that reached the Mountain Grove Street frontage. The new construction was part of an overall business expansion that included new showrooms in Toronto and Chicago. During the same time, at the urging of Edward Hurley, Chairman of the United States

Shipping Board and driving force behind the creation of the Merchant Marines, Harry Ives introduced a new line of clockwork toy boats (Robinson 1991:12). The boat line never enjoyed the popularity of the trains and was an economic drain on the company. The company also made a line of construction sets, but this too never sold well.

On July 7, 1928, the Ives Manufacturing Corporation filed for bankruptcy, reporting liabilities of \$188,303.25. Christmas orders worth \$245,000 had already been received, so Charles R. Johnson, Ives President and General Manager, asked the court for a rapid settlement so that production could continue under a new owner (Greenberg 1991:15-16). The factory and all its assets, including patents and equipment, was sold at auction to Mandel Frankel, representing Joshua Lionel Frankel. Thus the Lionel Company owned Ives, at a cost of \$73,250.00 (Robinson 1991:52).

Ives trains continued in production until 1930 under the joint aegis of American Flyer, Hafner and Lionel. The Ives family was no longer involved, but some managers remained. Working with American Flyer and Lionel managers, they created a line "that represented the apex of appealing yet sophisticated toy trains" (Greenberg 1991:16). According to a display at the Toy Train Museum in Strasburg, PA, these trains made between 1928 and 1930 ("The Ives Transition Period") are rare and much valued by collectors. Lionel moved production out of the factory building in 1930.

There were probably several factors contributing to the firm's financial difficulties. Competition was certainly a principal one. Harry Ives insisted on making a high quality product, but his pricing had to be within range of the other toys on the market. Thus his costs were higher than other lines but his selling price remained low. His profit margin declined and it is possible that he actually lost money on some products. He was also faced with aggressive (some called it untruthful) advertising by the competition, but Ives chose not to counter it (Greenberg 1991:11).

Harry Ives was also generous to a fault. Repairs to the Ives trains were done in the factory and were almost always free. A catalogue was included with every set, no matter how small (Toy Train Museum, Reference Library).

The Technology of Toy Trains

The earliest toy trains, including those made by Ives, ran not on tracks, but on the floor. They were either pulled or run by a wind-up spring mechanism like a clock. After the factory burned in 1900, Ives decided to retool and change his production line to trains that ran on track. There were several types of toy trains in production at that time; in the United States, Carlisle & Finch (from 1896) and Lionel (from 1901) manufactured a metal strip and wooden tie track, and in Europe Bing, Märklin, Carette and several others made sectional tracks. Presumably Ives, already an important toy producer, was familiar with all these variations (Greenberg 1991:7).

Ives chose to manufacture sectional tracks, even though they were more costly to make, since they were easier for children to assemble and did not kink and twist like strip or ribbon track. Unlike some of his competitors' trains, Ives products continued to run by clockwork as they had before the introduction of tracks. Competition was fierce, and in 1910, the same year that the German company Bing opened a New York office, Ives trains were finally electrified (Greenberg 1991:8).

At first the fields and armatures for the electric motors were wound (by women) on a machine improvised out of an old sewing machine with a treadle. Then this machine was electrified, and soon there were many winding machines. Ives was soon the largest manufacturer of electric trains in the country, and remained so until 1919 (Hertz 1950:97).

The stamping press was an important asset in many industries, including Ives. It enabled the factory to mass produce a variety of parts economically. A strip of sheet metal was fed into a press, where it could be either cut or shaped. The press was a heavy, strong and rigid machine with a very heavy fly wheel transmitting power via belts or gears to the drive shaft. The drive shaft then drove the punch into a die, thus forming the desired part (Hine 1971:94-103). Before the new addition was built in 1917, P. T. Barnum elephants were reportedly one of the power sources for this operation. The elephants apparently hoisted the heavy punch which then dropped onto the die.

Metal spinning, a way of shaping metal, was also done in the shop. It required a solidly built metal spinning lathe, since considerable strain was placed on it. The lathe operated at fairly high speed, and a sheet metal disc was revolved in the lathe against a hard wooden chuck which determined the shape of the part being made. A variety of spinning tools, with handles the size of baseball bats that are held between the arm and the body, were pressed against the metal to shape it against the chuck. These tools performed such functions as trimming, smoothing, grooving, or beading the metal disc. The part was then polished and buffed (Fraser 1962:105-118).

The term "gauge" refers to the distance between the tracks on which a train runs. In "O" gauge, this distance is 1 inch, the size that children of the fifties most commonly remember (Donald J. Lewis, personal communication 1997). In addition to the "O" gauge trains, Ives added a #1 gauge to his line in 1904 and continued to produce it until 1920. It was then discontinued and, in a major policy change, replaced with a larger gauge, which was very similar to Lionel's trademarked "Standard Gauge". Ives called it "Wide Gauge", with a measurement of 2 inches (Greenberg 1991:12).

Ives trains were realistic looking, with accurate details reproduced from real trains actually in use. This was a result of the use of cast-iron frames and the soldering of tinned steel to form bodies. The method was expensive, however, and the amount Ives could charge for his products was limited by the competition (Greenberg 1991:19).

Ives was long noted among Bridgeport's many factories as maintaining a superior painting and baking operation. A small separate one-story building with a cement floor was constructed specifically for "japanning" (Hertz 1950:88). This process, using a type of lacquer, produced a brilliant hard finish. The original 1901 cars had been hand painted and striped, but by 1903 this laborious process was being replaced by the use of lithography. The fourth lithographed series, including the "Brooklyn" and Buffalo" cars, was spectacular with gold, silver, plum or green metallic trim. The fifth series, ending at the beginning of World War I, featured yellow cars with woodgrained sides (Robinson 1991:46). The lithography was done in Long Island.

Manufacturers, primarily in Europe, recognized the need and potential for profit of accessories for toy trains soon after they began to produce the trains themselves. Even before 1900, candlelit stations of various sizes and signals illuminated by tiny alcohol lamps were available. Early in the twentieth century, Märklin was marketing sheds, signs that could be lighted, weighing houses and refreshment carts complete with plaster foods. Other factories followed the trend, and by the 1920s and 1930s, there were accessories to create an entire railroad world (Jailer 1991:59).

Ives too entered the market, and in the early 1900's manufactured a lift bridge that dropped automatically when a train approached. In 1909 Ives made a turntable for "O" gauge trains that could either be operated manually or powered by clockwork; the toys were still not electrified. Among the most popular, even famous, accessories were the various Ives stations with glass domes, now much sought by collectors. One was constructed so the train could run underneath. A glass-dome double station sold for over \$1,000 in 1991. In 1930, the year before Ives was completely taken over by Lionel, the factory produced the "Treasure Chest," filled with a multitude of accessories. No train was included, but there was everything else to set up a complete railroad: transformer, tracks, stations, signals and a variety of houses and sheds (Jailer 1991: 60-61). The 1915 catalogue even advertised a "Controlophone," which stopped and started the train by a voice command, but the product was never re-offered (Greenberg 1991:10).

Strangely, Lionel catalogues between 1908 and 1914 listed Ives accessories for sale, even the large glass-dome stations. One collector speculates that Ives did not consider the competitor Lionel a serious threat. It turned out to be an ill-fated and prophetic move, because even after purchasing the Ives company, Lionel issued Ives catalogues in 1931-32 (Jailer 1991:61).

Personnel

Edward R. Ives, the founder of the company, was involved "hands-on" in production throughout his career at the factory. He never abandoned his love for clockwork-propelled toys, and his favorite occupation was to test and adjust their mechanisms. White-haired and mustached, the small, thin man (he weighed 112 pounds), rode his bicycle to work early each morning, greeting the neighborhood children on their way to school. A conservative man, he shunned the automobile for a horse and buggy, even though both the company and his son owned automobiles. He died November 29, 1918 and was remembered in the publication Playthings with the words "his name has always stood for the best that could be done in any line to which he gave his efforts" (Hertz 1950:98-110).

C.H. Silliman, who also weighed 112 pounds, was superintendent of the factory, and a good friend of the senior Ives.

Edward Ives' son, Harry C., worked with him at the factory, and it was he who turned to electrical power for the engines. He planned and wrote the catalogues himself, and in the rush before Christmas there would be 1,500 to 2,000 requests a day for them, at 10 cents apiece. His daughter Virginia came to the plant in December especially to process these orders. Harry was a generous man, and if he received a particularly affecting letter, he would often see that the boy who wrote it was sent a free train. However, he had no patience with a boy who did not take good care of his train (Hertz 1950:126-127).

When the Ives Company was sold in 1930, Harry moved down Holland Avenue to #88 to be "active head" of the Electric Heater Co., but he soon retired to a farm in Washington Depot, CT. There he continued to tinker with ideas for toys and to press for a national junior railway organization with its own monthly magazine. Before the latter came to fruition, Harry Ives died in 1936 at the age of 68 (Hertz 1950:142-3).

Charles A. "Charley" Hotchkiss was the pattern maker for the Ives factory, working there long enough to celebrate his 50th anniversary with the firm. It was he who implemented Harry Ives's concept of putting a clockwork motor in the toy locomotive (Robinson 1990:40). A man named Schnibbe was the "Traffic Manager" and his office was called Ives "Sales Stable". Assisting him was Joseph Rose. The tool room was directed by Harry Cory, head toolmaker (Hertz 1950:90-116).

One of the most remembered and loyal members of the firm was the Lithuanian Clarence De Kalb. From about 1900 to 1930 he drove Ives trucks to pick up clockwork supplies from Milford or lithographed tin sheets from Long Island. He also handled payroll and

banking for the company and was a source of information on every department. His son Hallet later worked at the factory as well, in the Japan room, the track room and finally as head of the stock department (Hertz 1950:101-102).

By 1910 at least 42 men were employed at the Holland Avenue plant (Grimaldi 1993:102). With the electrification of the trains, the work force was expanded to include electricians, headed by William G. Viall. It was he who first persuaded Harry Ives to convert his trains to electricity. Originally operator of the drawbridge on the New Haven Railroad, he became a partner of the Empire Electric Works of Bridgeport which developed electric motors for model trolley cars. Viall improved this motor and mass produced it for Ives (Hertz 1950:97). One of the first foremen on the electric engines, working at Ives from 1910 to 1923, was Joe Krosky. John Allen was a tester for the engines, along with three or four others during the busy period.

The company must have been a pleasant place to work. John Allen, in an interview in the 1940s reminisced:

It was the only shop I know of that we were all like one great family, each one taking an interest in all the others, everyone ready to help each other at any time. So you can readily see what made their products vastly superior. The old rule of all for one and one for all. One thing about this shop is that they considered each employee not so much hired help but as co-partners. It was not uncommon for the Ives to seek advice and ideas from each one of its employees (Hertz 1950:98-99).

As the business expanded, women were also hired. Joe Krosky met his future wife at Ives, and often several family members would be employed. Ives insisted upon quality production and customer satisfaction. In addition, the loyalty and long tenure of the Ives' superintendent and pattern maker, Silliman and Hotchkiss, respectively, were critical to the exceptional quality of the Ives "miniature railway systems." By the 1920s, "the high water mark" of the factory, about 300 people worked at Ives (Hertz 1950:116).

Architecture

The 1907 Main Building

The old Ives Manufacturing Corporation building, at 194 Holland Avenue, was the most important structure on its street (Photographs CT-170-1 and CT-170-2). The main section was completed in 1907, and had wood posts, beams, trusses and floors (Sanborn 1939, Hertz 1950:88). It was of typical early twentieth century mill construction except

for its exterior cladding, which was made of cast concrete blocks molded to look like rough-dressed ashlar masonry. These "patent stone" blocks were about 8½ inches high. The Penguin Dictionary of Architecture gives the following definition of ashlar:

Hewn blocks of masonry wrought to even faces and square edges and laid in horizontal courses with vertical joints, as opposed to unhewn stone straight from the quarry (Fleming 1980:20).

The building is 2½ stories high and has 8 (4 pairs) of skylights in a trussed gable roof. There are 19 pairs of double-hung windows on the second floor of the front elevation of the building, with two doors replacing the paired windows in two locations on the ground floor. A hipped roof porch covered the door near the east end of the building circa 1918 (Illustration from Ives advertising brochure). This door, later sealed up, led to Mr. Ives' office, which had its own fireplace. Most recently, a gabled entry porch covered the other, more centrally located main door. A wooden loading platform was added to the western end of the structure sometime after 1939.

Building frontage is 160 feet on Holland Avenue, and the structure extends back from Holland Avenue for 48 feet. The first floor housed the sheet metal blanking department and offices. Assembly was performed on the second floor, and there was a stock room in the attic. Here Ives train sets and accessories were stacked the length of the building, with chalk marks on the walls indicating what was there (Hertz 1950:102). The flooring was made of pine boards with cracks between them. During the period when Ives was making toy boats, the attic held a large water tank for testing them. To the dismay of workers on the floors below, the tank frequently leaked, and the settling of the building on its western end is attributed to the weight of the tank (L.P. MacAdams, personal communication). The Sanborn Plan View - Ives Manufacturing Corporation shows the layout of buildings in 1913. Photographs CT-170-7 through CT-170-20 show how the interior of the building looked in March 1997.

Accessory Buildings

The Japan room was in a smaller ancillary building connected to the rear of the main building by a short corridor. Here the flammable solvents used in the lacquering process could be safely isolated. Nearby, another small building housed the grinding room, thus keeping dust and dirt away from the assembly and finishing operations. Also in this building were a vault, boiler room (the building was steam-heated), water closets, elevator and a room which housed the gasoline engine supplying motive power to the belts and pulleys powering the machinery. Ives and his craftsmen planned the building to be an efficient and practical workshop ideally suited to its purpose.

Behind the grinding room and to the east were two small (approximately 45 by 20 feet overall) buildings attached to each other. One was a storehouse and the other a garage. These early buildings had been either replaced by or incorporated into a larger storage area and garage by ca. 1918. This building can be seen in the Plan View - Ives Manufacturing Company, Sanborn 1939, as well as in the Illustration from the Ives advertising brochure, ca. 1918. The approximately 30 by 120 foot detached wood building ran along the eastern property line. It was one story high, but with a shed-roofed attic. The building was demolished, and the Bodine Corporation erected the modern structure that stands in the same location today.

Another modern building was added to what had been the Ives complex in the mid 1960s. It has the address of 248 Ash street (on the eastern side of the street) and is the home of the Fray Welding Company. It replaced a ca. 1918 building in the same location that burned down.

1917 Addition

The two-story, flat-roofed rear portion of the Ives building was added in 1917. It connected to the original building through the former grinding room. Its frontage at 389-393 Mountain Grove Street measured 60 feet, and it extended back to the original building 125 feet, or 186 feet back of the Holland Avenue facade. It too can be seen in the Plan View - Ives Manufacturing Corporation by Sanborn in 1939 and the ca. 1918 brochure illustration. The addition had solid, heavy reinforced concrete flooring. This was needed to support the all new heavy-duty, punch-stamping presses, and metal spinning machines. (These had been sorely needed, since P.T. Barnum was no longer permitting his elephants to pull up the drop weight on the old stamping press) (Robinson 1992:52).

L.P. MacAdams recalls hearing that the weaving machines operated by the fabric company which later occupied this building would rock, and when their rocking was synchronized, the whole building would shake. This could explain the buttresses on the sides, some of which have since been removed (L.P. MacAdams, personal communication). This building has survived with a high degree of integrity. Its stepped parapet and projecting pilasters provide visual interest in an otherwise mundane local streetscape dominated by late twentieth century warehouses and manufacturing facilities.

When Lionel bought the company in 1931, it closed the Bridgeport factory. The Sanborn Map for 1939 shows the Ives complex occupied by Bridgeport Fabrics, Inc., Plant No. 2. The company manufactured rubber weather stripping. The name American Fabrics was later associated with the factory, and it was purchased in May, 1961 by the MacAdams family which used it for its printing and paper processing business. L.P. MacAdams, Inc. vacated the building in March, 1997.

In 1959 the Standard Gauge Association recognized the contribution of the Ives Manufacturing Company in the history of American toy manufacturing by placing a commemorative plaque on the facade of the 194 Holland Avenue building, then the home of Bridgeport Fabrics (BPL Newspaper Clippings File: Ives). The plaque, which was removed from the building during the MacAdams' ownership, reads:

This building was erected in 1907 by the Ives Manufacturing Company. Established 1868, "America's Greatest Toymakers", and occupied by them through 1930. Within these walls were produced millions of Ives electrical and mechanical trains and other toys. This plaque commemorates Edward R. Ives and his son, Harry C. Ives, and all their co-workers whose inspired efforts brought into reality the famous slogan: "Ives Toys Make Happy Boys."

Sources of Information

A. Engineering drawings

U.S. Patent Office, ca. 1908

Patent No. 892,665. E.R. Ives: Toy Trolley Railway. Application filed Jan. 20, 1908.

B. Historic Views

The Ives Manufacturing Corporation ca. 1918.

Drawing from an Ives 1918 Advertising Brochure.

C. Interviews

Lewis, Donald J., Toy Train Buff and Collector

1997 Telephone Interview, April 30, 1997.

35 Harwood Drive

Danbury, CT 06810

Tel: (203) 792-5090

MacAdams, Lawrence Paul, President

1997 Telephone Interview, May 1, 1997

L.P. MacAdams, Inc.

50 Austin Street

Bridgeport, CT 06604

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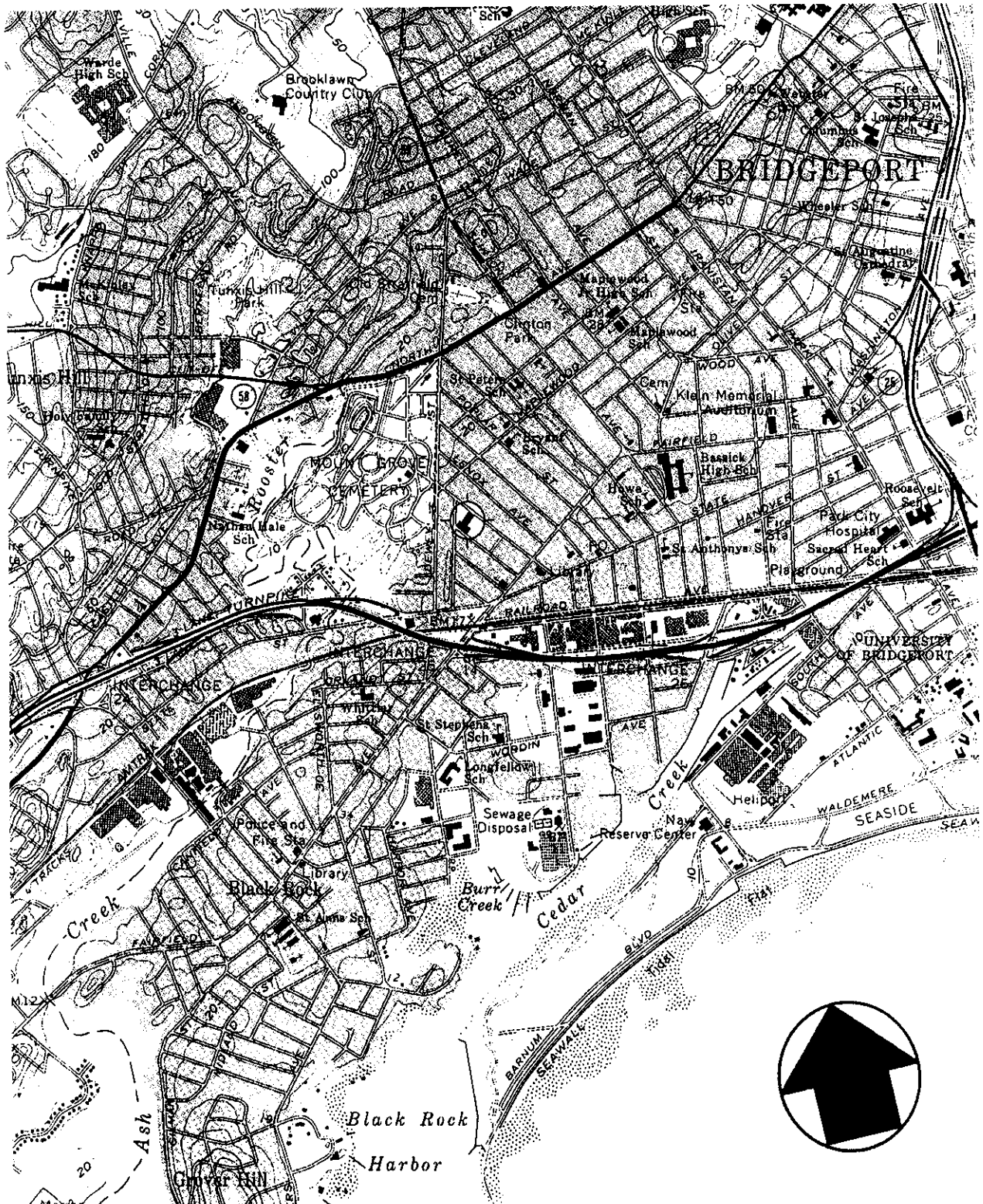
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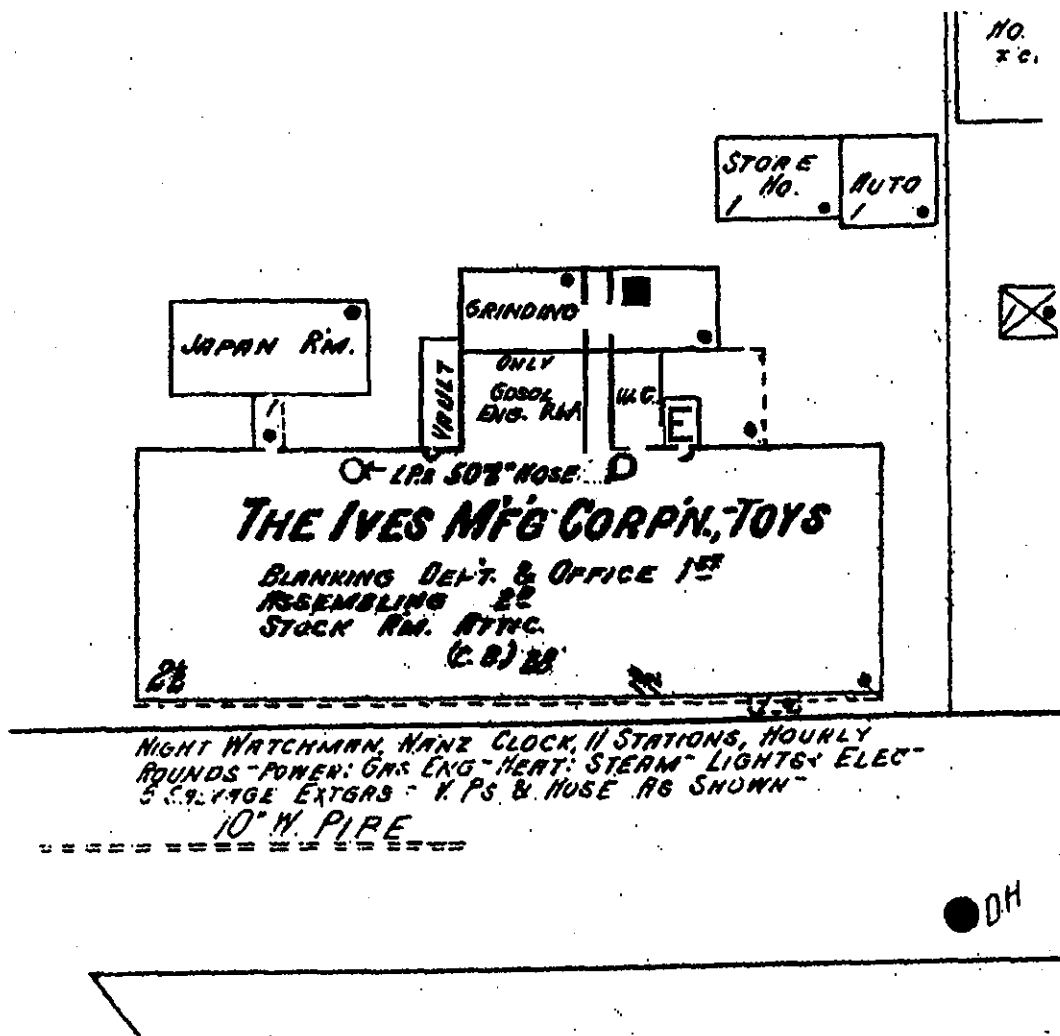
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No. 892,665.

E. R. IVES.
TOY TROLLEY RAILWAY.
APPLICATION FILED JAN. 20, 1908.

R. H. Newman.
Ruth Raymond.

INVENTOR
Edward R. Fves
BY
Chamberlain & Newman
ATTORNEYS